AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-53. (canceled).

54. (currently amended): An index structure for metadata divided into fragments, the index structure contained in a computer readable storage medium and comprising:

a list of keys corresponding to fields of the metadata, and

location information for defining a key and locating and extracting a fragment of the metadata, wherein at least a part of the location information is expressed as a predetermined code, the predetermined code comprising a predetermined standard code being assigned to said at least a part of the location information according to a convention for associating codes with portions of the metadata and corresponding to a frequently used fragment type, and a predetermined location code indicating that the index structure contains a location of an expression specifying a location of the fragment.

55. (previously presented): The index structure as claimed in claim 54, wherein the location information comprises location information of a fragment including the key, and location information of the key within the fragment.

56. (previously presented): The index structure as claimed in claim 55, wherein one of the location information of the fragment and the location information of the key is expressed as the predetermined code.

57. (previously presented): The index structure as claimed in claim 56, wherein the predetermined code comprises additional information in a language for addressing parts of a markup language document, wherein the location of one of the fragments and the key expressed as a predetermined code corresponds to a user defined type.

58. (previously presented): The index structure as claimed in claim 55, wherein one of the location information of the fragment and the location information of the key is expressed as the predetermined code and one of the location information of the fragment and the location information of the key is expressed in a language for addressing parts of a markup language document.

59. (previously presented): The index structure as claimed in claim 54, further comprising values of the key and identification information of the metadata corresponding to the values of the key.

60. (previously presented): The index structure as claimed in claim 54, further comprising:

a sub-section including ranges of values of the key and identification information on ones of the fragments of the metadata corresponding to the values of the key; and

a section including representative key values representing the respective ranges of values of the key.

61. (previously presented): The index structure as claimed in claim 60, wherein:

the list includes identification information on the section, and

the section further includes identification information on the sub-section.

62. (previously presented): The index structure as claimed in claim 60, wherein each of the representative key values is a value among the corresponding range of values of the key.

63. (currently amended): An index structure for metadata divided into fragments, the index structure contained in a computer readable storage medium and comprising:

a key index list section comprising a list of keys corresponding to fields of the metadata, and location information for defining the keys and locating and extracting fragments of the metadata, wherein at least a part of the location information is expressed as a predetermined code, the predetermined code comprising a predetermined standard code being assigned to said at least a part of the location information according to a convention for associating codes with portions of the metadata and corresponding to a frequently used fragment type, and a predetermined location code indicating that the index structure contains a location of an expression specifying a location of a fragment;

a key index section; and

a sub-key index section, wherein for a key of the key index list:

the sub-key index section comprises ranges of values of the key and identification information on ones of the fragments of the metadata corresponding to the values of the key, and

the key index section comprises representative key values representing the respective ranges of values of the key.

64. (previously presented): The index structure as claimed in claim 63, wherein the location information comprises location information of a fragment including the keys, and location information of the keys included within the fragment.

65. (previously presented): The index structure as claimed in claim 63, further comprising a corresponding key index section and a corresponding sub-key index section for another key of the key index list.

66. (previously presented): The index structure as claimed in claim 63, wherein:

the key index list section further comprises identification information on the key index section, and

the key index section further comprises identification information on the sub-key index section.

67. (currently amended): An index structure for metadata divided into fragments, the index structure contained in a computer readable storage medium and comprising:

a list of keys corresponding to fields of the metadata, and location information for defining the keys, wherein at least a part of the location information is expressed as a predetermined code, the predetermined code comprising a predetermined standard code being assigned to said at least a part of the location information according to a convention for associating codes with portions of the metadata and corresponding to a frequently used fragment type, and a predetermined location code indicating that the index structure contains a location of an expression specifying a location of a fragment; and

values of the keys and identification information concerning the metadata corresponding to the values of the keys for locating and extracting the fragment of the metadata.

68. (previously presented): The index structure as claimed in claim 67, wherein the identification information comprises identification information on the fragments of the metadata corresponding to the values of the keys.

69. (previously presented): The index structure as claimed in claim 67, wherein the metadata has a structure of metadata as defined by the TV-Anytime Forum.

70. (currently amended): A computer readable storage medium containing a data structure for storing an index for metadata divided into fragments, the index provided to search the metadata, the data structure comprising,

a list of keys corresponding to fields of the metadata, and

location information for defining a key and locating and extracting a fragment of the metadata, wherein at least a part of the location information is expressed as a predetermined code, the predetermined code comprising a predetermined standard code being assigned to said at least a part of the location information according to a convention for associating codes with portions of the metadata and corresponding to a frequently used fragment type, and a predetermined location code indicating that the index structure contains a location of an expression specifying a location of the fragment.

71. (currently amended): A computer readable storage medium containing a data structure for storing an index for metadata divided into fragments, the index provided to search the metadata, the data structure comprising:

a key index list section comprising a list of keys corresponding to fields of the metadata, and location information for defining the keys and locating and extracting a fragment of the metadata, wherein at least a part of the location information is expressed as a predetermined code, the predetermined code comprising a predetermined standard code being assigned to said at least a part of the location information according to a convention for associating codes with portions of the metadata and corresponding to a frequently used fragment type, and a

predetermined location code indicating that the index structure contains a location of an expression specifying a location of the fragment;

a key index section; and

a sub-key index section, wherein for a key of the key index list:

the sub-key index section comprises ranges of values of the key and identification information on ones of the fragments of the metadata corresponding to the values of the key, and

the key index section comprises representative key values representing the respective ranges of values of the key.

72. (currently amended): A computer readable storage medium containing a data structure for storing an index for metadata divided into fragments, the index provided to search the metadata, the data structure comprising:

a list of keys corresponding to fields of the metadata, and location information for defining the keys, wherein at least a part of the location information is expressed as a predetermined code, the predetermined code comprising a predetermined standard code being assigned to said at least a part of the location information according to a convention for associating codes with portions of the metadata and corresponding to a frequently used fragment type, and a predetermined location code indicating that the index structure contains a location of an expression specifying a location of a fragment; and

values of the keys and identification information concerning the metadata corresponding to the values of the keys for locating and extracting the fragment of the metadata.

73. (previously presented): The index structure of claim 54, wherein the location information to which the predetermined code is assigned corresponds to a path from a root node in the metadata to a metadata fragment containing the key.

74. (previously presented): The index structure of claim 73, wherein the location information is an XPath expression.

75. (previously presented): The index structure of claim 63, wherein the location information to which the predetermined code is assigned corresponds to a path from a root node in the metadata to a metadata fragment containing the key.

76. (previously presented): The index structure of claim 75, wherein the location information is an XPath expression.

77. (previously presented): The index structure of claim 67, wherein the location information to which the predetermined code is assigned corresponds to a path from a root node in the metadata to a metadata fragment containing the key.

78. (previously presented): The index structure of claim 77, wherein the location information is an XPath expression.

79. (previously presented): The index structure of claim 70, wherein the location information to which the predetermined code is assigned corresponds to a path from a root node in the metadata to a metadata fragment containing the key.

80. (previously presented): The index structure of claim 79, wherein the location information is an XPath expression.

81. (previously presented): The index structure of claim 71, wherein the location information to which the predetermined code is assigned corresponds to a path from a root node in the metadata to a metadata fragment containing the key.

82. (previously presented): The index structure of claim 81, wherein the location information is an XPath expression.

83. (previously presented): The index structure of claim 72, wherein the location information to which the predetermined code is assigned corresponds to a path from a root node in the metadata to a metadata fragment containing the key.

84. (previously presented): The index structure of claim 83, wherein the location information is an XPath expression.

85. (currently amended): An index list structure for use in locating and extracting a fragment of metadata divided into a plurality of fragments, the metadata transmitted from a provider to a receiver, the index list structure contained in a computer readable storage medium and comprising:

a fragment type field containing an encoded value, wherein the encoded value is one of a predetermined standard code assigned to a standard fragment type specifying a location of the fragment and is assigned according to a convention for specifying standard fragment types and corresponding to a frequently used fragment type, and a predetermined location code indicating that the index list structure contains a location of an expression specifying a location of the fragment;

a key descriptor field containing location information specifying a location of a key for the index relative to the location of the fragment indicated by the fragment type field.

86. (previously presented): The index list structure of claim 85, wherein the encoded value is assigned to a predefined string prior to creating a container containing the index structure for transmission from the provider to the receiver.

87. (previously presented): The index list structure of claim 86, wherein the predefined string specifying a location of the fragment is a path from a root node in the metadata to a metadata fragment containing the key.

88. (previously presented): The index list structure of claim 87, wherein the predefined string specifying a location of the fragment is an XPath expression.

89. (previously presented): The index list structure as claimed in claim 88, wherein the metadata has a structure of metadata as defined by the TV-Anytime Forum.

90. (canceled).